

Health Policy

Effect of the COVID-19 Pandemic on the Rate of Interventional Pain Management Therapies. Could the Application of Personal Protective Equipment Help?

Ahmed E. Salem, MD¹, Inas F. Abdelal, MD², Mohamed Ayaad, MD¹,
Mohamed A. Khashaba, MD³, Doaa M. Ismail, MD⁴, Ossama Hamdy, MD⁵,
Emtethal AS. Ahmed, MD⁶, Mohamed H. Abdel Rahman, MD³, Mohamed Lotfy, MD¹,
and Ahmed A. Shama, MD¹

From: ¹Department of Anesthesia, ICU & Pain, Tanta University; ²Department of Anesthesia, ICU & Pain, Cairo University; ³Department of Anesthesia, ICU & Pain, Benha University; ⁴Department of Physical Medicine, Rheumatology & Rehabilitation, Tanta University; ⁵Department of Anesthesia, ICU & Pain, South Valley University; ⁶Department of Physical Medicine, Rheumatology & Rehabilitation, Benha University

Address Correspondence:
Mohamed Lotfy, MD
Department of Anesthesia,
ICU & Pain
Faculty of Medicine, Tanta
University, Egypt
E-mail: mohamed.a.lotfy1988@gmail.com.

Disclaimer: There was no external funding in the preparation of this manuscript.

Conflict of interest: Each author certifies that he or she, or a member of his or her immediate family, has no commercial association (i.e., consultancies, stock ownership, equity interest, patent/licensing arrangements, etc.) that might pose a conflict of interest in connection with the submitted manuscript.

Manuscript received: 01-23-2022
Revised manuscript received: 06-10-2022
Accepted for publication: 06-29-2022

Free full manuscript:
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Background: Chronic pain symptoms are distressing conditions that necessitate regular visits to pain therapists and may require interventions, however, the COVID-19 pandemic has caused patients and their therapists to limit both visits and interventions with the transition to telehealth, with little or no preparation or training. This has resulted in the extensive use of over-the-counter analgesia and corticosteroids.

Objectives: Our study aimed to evaluate the effect of the COVID-19 pandemic on the rates of counseling and interventional pain management therapies (IPMT), and determine the effects of implementing an infection control program (ICP) and mandating personal protective equipment (PPE) on these rates.

Study Design: Prospective multicenter survey, based on an online self-assessed questionnaire.

Setting: Departments of Anesthesia, Pain, Intensive Care Unit, Physical Medicine, Rheumatology, and Rehabilitation at Egyptian University hospitals.

Methods: A self-assessed questionnaire was uploaded on Google forms and links were sent to enrolled therapists with an identification number to allow self-administration and privacy. Feedback was analyzed by 2 authors who were blinded to the identity of the responders.

Results: A total of 57.9% of responders increased their patients' contact by phone and video conference. Within 1-4 months after the outbreak began, 59% stopped in-person contact and 38.2% stopped their IPM practice. Prescriptions of analgesics and oral steroids increased by about 50%. The majority of responders complained of a shortage of ventilation appliances in their workplaces. About 50% of them always use ICP, 85% use surgical masks, 61% use gloves, and 45% wear gowns when meeting with patients. After the application of PPE, 45.5% of responders increased their consultation rate and 40% increased their rate of IPMT.

Limitations: This study is limited to being a national study, and so lacked comparative data.

Conclusion: The COVID-19 outbreak seriously affected the rates of in-person consultations and IPMT for patients with chronic pain and increased the rates of consumption of analgesia and oral steroids. Most responders reported a shortage of PPE especially ventilation appliances in workplaces. A high percentage of responders lack interest in ICP and PPE, despite the positive effects of its application on consultation and IPMT rates.

Key words: COVID-19 pandemic, in-person counseling rate, interventional pain management therapy, infection control programs, personal protective equipment

Pain Physician 2022; 25:E1405-E1413

The outbreak of Coronavirus disease 2019 (COVID-19) is a serious worldwide threat that presents as a broad range of symptoms; however, atypical infections with extrapulmonary manifestations have been reported (1).

Patients with chronic pain require long-term multidisciplinary management. During a pandemic there is always a fear of abandonment with increased incidences of anxiety and depression, especially during periods of social isolation. These factors subsequently aggravate pain conditions (2).

COVID-19 has deleteriously affected patients with chronic pain through the influence of the SARS-CoV-19 infection on pain (3) due to the association between the SARS-CoV-19 infection with myalgias, referred pain, and widespread hyperalgesia (4). Moreover, patients with chronic pain also frequently have multiple comorbidities, which increases the risk of SARS-CoV-2 infection (3).

The COVID-19 pandemic has altered the practice of medicine and has obligated pain clinics to transition from in-person visits to telemedicine, postpone procedures, and cancel face-to-face interventional pain management training sessions (5). Reduced interventional pain management during the pandemic has resulted in an increased consumption of over-the-counter analgesics and prescribed analgesics in many places with subsequent impairment in patients' quality of life (6). However, the applications of the substitutes to face-to-face management varies between countries and social grades, but all over the world there has been regression or stoppage of interventional pain management procedures and rehabilitation services.

Personal protective equipment (PPE) is being used to control the transmission of COVID-19. There are also multiple restrictive governmental rules regarding face-to-face meetings between patient and provider. However, PPE use depends on personal behavior and its effect on the feasibility of meeting with patients and the provision of interventional pain management therapies and rehabilitation procedures varies with no definitive outcome. Thus, our study tries to evaluate the effect of the COVID-19 pandemic on the rates of counseling and interventions at centers of interventional pain management therapy (IPMT) and rehabilitation therapy. Our study also attempts determine the effects of the implementation of infection control programs (ICP) and PPE on these rates in multiple hospitals in Egypt and Arab countries, especially Saudi Arabia.

STUDY DESIGN

Our study was conducted using a prospective multicenter survey based on an online self-assessed questionnaire.

SETTING

Our study was conducted with personnel from the Departments of Anesthesia, Pain, Intensive Care Unit, Physical Medicine, Rheumatology, and Rehabilitation at Egyptian University hospitals.

Ethical Consideration

Our study protocol was approved by the Local Ethical Committee at Benha Faculty of Medicine, approval number RC: 2-1-21. The study protocol was also registered at ClinicalTrials.gov, NCT04946175. For privacy purposes, all feedback responses were analyzed by 2 authors who were blinded to the identity of these responders. Questions concerning the financial outcome of counseling and interventions were omitted from the questionnaire. No consent for participation was obtained because each physician was free to respond or not.

Respondents

The questionnaire was uploaded on Google forms and links were sent either as an email or as a message using WhatsApp to a private phone number for each interventional pain management therapist from February 2021 through April 2021. Each Egyptian interventional pain management therapist who was approved by the university or by the General Syndicate of Physicians as an interventional pain management therapist received a link provided each had a registered email or phone number, irrespective of work location. An identification number was sent with the link to allow the respondent to log into the questionnaire. A one month grace period was allowed to send feedback. Any feedback received after the start of June 2021 was discarded.

METHODS

The survey consisted of a series of questions divided into the following 6 domains:

- Domain I consisted of 6 questions assessing physician gender, age, duration of IPMT practice, and practice location
- Domain II consisted of 8 questions assessing the effect of the COVID-19 pandemic on IPMT regarding how to communicate with patients,

the effect of the pandemic on the number of counseling and interventions, and the cause of change, if any, and the feedback effect on medication prescribing

- Domain III consisted of an 8-point survey about the application of an ICP
- Domain IV consisted of 12 points concerning the application of PPE during the COVID-19 era
- Domain V was concerned with the outcome of the implementation of ICP and PPE on the rate of counseling
- Domain VI was concerned with the outcome of the implementation of ICP and PPE on the rate of interventions.

Sample Size Calculation

Previous similar questionnaire-based surveys had 2,295 respondents and a response rate of 8% (7) and 1,430 respondents and a response rate of 18.2% (8). Our study targeted a response rate of at least 40% to get a study power of 90% with an α value of 0.05 and β value of 0.1. The minimum number of responders was calculated to be 130, thus the online questionnaire needed to be sent to more than 500 interventional pain management therapists.

Exclusion Criteria

Responses were excluded if any questions in Domains II-VI were not answered, if the answer was out of the scope of the provided answers, was given in meaningless words, if the physician had stopped practice before the COVID-19 era, if the workplace was used governmentally as a quarantine hospital, and if the response was received after the deadline.

Statistical Analysis

Data are presented as mean, standard deviation, numbers, percentages, median, and interquartile range (IQR). Statistical analysis was conducted using IBM SPSS Statistics (Version 22, 2015; Armonk, USA) for Windows statistical package.

RESULTS

The message containing the link to the study survey was sent to 600 physicians; 261 responded for a response rate of 43.5%. Of those 261, 83 responses were discarded for a reason listed above in the exclusion criteria. Therefore, 178 responses were analyzed (Fig. 1). The personal and workplace data are shown in Table 1.

Domain II

All responders decreased their direct patient contact, with a median decrease of 25% (IQR, 25%-50%), while patient contact increased using the telephone or video conference by a median increase of 50% (IQR, 25%-50%) and 25% (IQR, 25%-50%), respectively. Collectively, 26 therapists (14.6%) decreased their patients' contacts, irrespective of the mode of contact, while 103 therapists (57.9%) increased their patients' contacts attributing this to increased communication using the telephone or video conference. By contrast, 49 therapists (27.5%) reported no change in their contact rate due to the use of the telephone or video contact before the outbreak. Regarding the rate of interventions during the COVID-19 era, 93 therapists (52.2%) stopped their practice completely, 78 therapists (43.8%) reduced their rate of intervention by 75%, 6 therapists (3.4%) reduced their practice by 50%, and only one therapist reduced his interventional rate by 25% (Table 2).

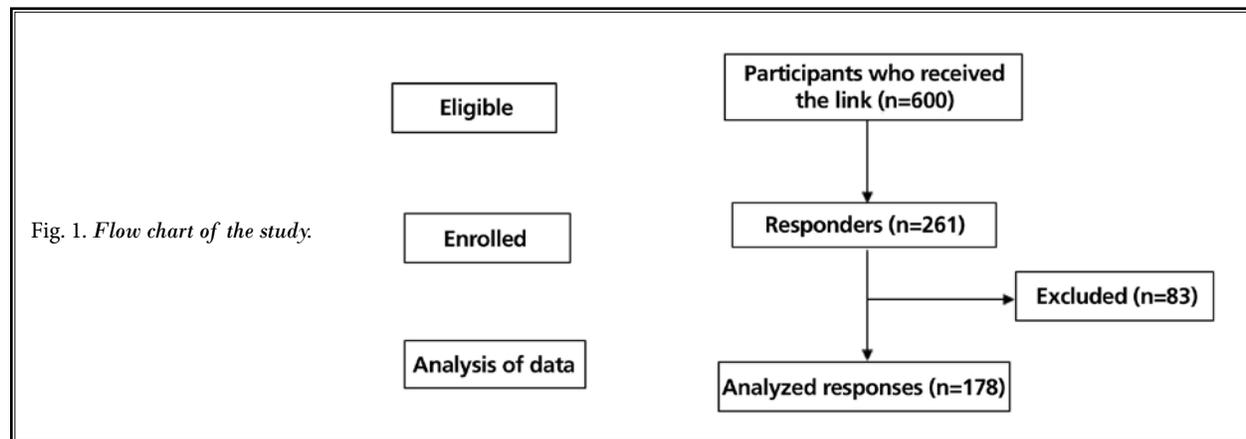


Fig. 1. Flow chart of the study.

Table 1. Personal and work location data of responders.

Variables		Number	(%)
Gender	Men	127	71.3
	Women	51	28.7
Age (years)	< 30	8	4.5
	30-39	32	18
	40-49	97	54.5
	50-59	25	14
	≥ 60	16	9
	Mean (± SD)	45.7 (8.6)	
Duration of IPMT practice (years)	< 5	6	3.4
	5-9	23	12.9
	10-19	82	46
	20-29	56	31.5
	≥ 30	11	6.2
	Mean (± SD)	18.75 (7.6)	
Location of practice	Egypt	65	36.5
	Saudi Arabia	42	23.6
	Kuwait	29	16.3
	Emirates	31	17.4
	Oman	11	6.2
Description of practice location	Rural	112	5.6
	Suburban	56	31.5
	Urban	10	62.9
The location where major clinical time was spent	University hospital	32	18
	Community clinic	49	27.5
	Hospital-based private	65	36.5
	Office-based private	29	16.3
	Private practice, solo	78	43.8

Data are presented as numbers and percentages.

Once the COVID-19 outbreak began, 15 therapists (8.4%) stopped in-person contact with their patients and 32 therapists (18%) stopped their intervention practice. By contrast, 51 therapists (28.7%) stopped in-person contact with their patients and 78 therapists (43.8%) stopped their intervention practice only with the lockdown. Seven therapists (3.9%) did not reduce their in-person contact with their patients despite the lockdown. Within 1-4 months after the outbreak began, 105 therapists (59%) stopped in-person contact with their patients and 68 therapists (38.2%) stopped their intervention practice.

The causes of the reduction in practice rate were mixed; 84 therapists (47.2%) were worried about their safety, 76 therapists (42.7%) were concerned about their family's safety, 62 therapists (34.8%) were

concerned about their staff's safety, and 45 therapists (25.3%) were worried about public safety, while 67 therapists (37.6%) were concerned with the need for prescribing steroid therapy. Out of the surveyed therapists, 48 therapists (27%) attributed the rate reduction to the fewer number of patients visiting their clinic. Interestingly, 105 therapists (59%) attributed their reduction in in-person rates to having limited PPE, especially during the first wave of the outbreak (Table 3)

Drug prescriptions were seriously affected by the COVID-19 outbreak. Seventy-six therapists (42.7%) increased their rate of prescribing opioids and 100 therapists (56.2%) increased their rate of prescribing acetaminophen, while 163 therapists (91.6%) increased their rate of prescribing NSAIDs. Regarding prescribing oral steroids, 51 therapists (28.7%) did not increase the use of oral steroids, 73 therapists (41%) increased their dosage prescription rate by 25%, 37 therapists (20.8%) increased oral steroid prescriptions by 50%, 13 (7.3%) and 4 therapists (2.2%) increased oral steroid prescription dosages by 75% and 100% of the previous dose. Only 13 therapists (7.3%) and 40 therapists (22.4%) did not increase their prescription of muscle relaxants or drugs for neuropathic pain, respectively (Table 4).

Domain III & IV

Only 9 responders (5.1%) often applied cross-ventilation with increased use of suction-ventilation appliances wherever possible; 36 responders (20.2%) occasionally used cross-ventilation or increased ventilation, while 98 of the responders (55.1%) did not increase ventilation and rarely used cross-ventilation while 35 responders (19.6%) never increased ventilation or used cross-ventilation. Only 41 (23%) of responders used physical barriers and 97 (54.5%) of responders were accustomed to increasing physical distance during in-person contact with their patients. Moreover, only 43 (24.1%) of responders had a specific area for donning and doffing of clothes and applied regular cleaning and disinfection. On the other hand, about 133 (74.7%) of responders had waste disposal appliances, and 86 (48.2%) of responders regularly cleaned work clothes (Table 5).

Only 28 responders (15.7%) occasionally used surgical masks, while the remaining often or always used them. About 21 (11.8%) of responders always used N95 masks, 32 (18%) often used them and about 19 (10.7%) occasionally used N95 masks, while about 106 (59.5%) never or rarely used N95 masks. Regarding the use of gloves, about 109 (61.2%) of responders always

or often used gloves in contact with their patients, while about 32 (19.2%) rarely or never used gloves during patient contact. Only 58 (32.6%) of responders used eye-protective tools or face shields and about 79 (44.4%) of responders wore gowns and 44 (24.8%) wore coveralls while in contact with patients. About 138 (77.5%) of responders used alcohol hand sanitizer and 116 (65.2%) of responders were accustomed to using soap and running water after being in contact with their patients (Table 6).

Domain V & VI

Regarding the impact of using PPE on the consultation rate, 53 responders (29.8%) reported no change in rate, while 81 responders (45.5%) reported an increased rate of consultations after implementing PPE by 25% in 23 responses, 50% in 36 responses, 75% in 13 responses and 100% in 9 responses. On the other hand, 44 responders reported decreasing rates by 25%, 50%, and 75% in 19, 22, and 3 responses, respectively. Regarding the impact of implementing PPE on the rate of interventions, 73 responders (41%) documented no change, and 15 (8.4%) and 19 (10.7%) responders reported decreased rates by 25% and 50%, respectively. However, 71 (39.9%) responders reported an increased interventional rate after implementation of PPE by 25% in 16 responses, 50% in 28 responses, 75% in 21 responses, and 100% in 6 responses (Table 7).

DISCUSSION

All responders reported decreased in-person contact with their patients and a high reduction in their interventional procedure rate. Moreover, about 20%

of respondents stopped their practice within one month of the start of the COVID-19 outbreak and by the fourth month, about 68% of them had reduced or stopped their practice.

These data spotlight the deleterious effect of the outbreak on the rates of interventional pain management therapy (IPMT), both at the level of consultation and interventional procedures. These findings agree with what has been reported not only for pain therapy, but also for other medical and emergency consultations and interventions as documented by Schäfer et al (9). Schäfer et al (9) used a questionnaire survey and observed a dramatic reduction in the number of consultations, independent of the specialty of the prac-

Table 2. Percentage of patients' contact and interventions in comparison to a typical weekly practice of responders.

Variables		Number	(%)	
Percentage of patients' contact in comparison to typical weekly practice	In-person	100%	7	4
		75%	25	14
		50%	45	25.3
		25%	73	41
		0%	28	15.7
		Median (IQR)	25 (25-50)	
	By phone	75%	24	13.5
		50%	88	49.4
		25%	63	35.4
		0%	3	1.7
		Median (IQR)	50 (25-50)	
	Using video	75%	8	4.5
		50%	75	42.1
		25%	86	48.3
		0%	9	5.1
		Median (IQR)	25 (25-50)	
Percentage of change of contact, irrespective of the mode of contact	Decrease by	75%	1	0.6
		50%	2	1.1
		25%	23	12.9
	No change	49	27.5	
	Increased by	25%	66	37.1
		50%	24	13.5
		75%	13	7.3
Median (IQR)	25 (0-25)			
Percentage of decreased intervention rate in comparison to typical weekly practice	100%	93	52.2	
	75%	78	43.8	
	50%	6	3.4	
	25%	1	0.6	

Data are presented as numbers and percentages, median and interquartile range (IQR).

titioners or the practice location, whether in an urban or rural area. Cegla & Magner (10) reported significant infection from COVID-19 of patients with chronic pain, especially during the lockdown but a large number of patients had their pain deteriorate. Moreover,

Table 3. *The reduction of patient contact and pain interventions along with etiologies over time following the outbreak of COVID-19.*

Variable Time	In-person contact		Interventions	
	Number	(%)	Number	(%)
Once started	15	8.4	32	18
one mo later	21	11.8	14	7.9
2mo later	24	13.5	19	10.7
3 mo later	26	14.6	14	7.9
4 mo later	34	19.1	21	11.8
On lockdown	51	28.7	78	43.8
Never reduced	7	3.9	0	0
Causes of reduction of practice rate				
Concerns about	Personal safety		84	47.2%
	Family safety		76	42.7%
	Staff safety		62	34.8%
	Public safety		45	25.3%
	Corticosteroid use		67	37.6 %
Fewer patients are coming to clinic			48	27%
Limited PPE			105	59%

Data are presented as numbers and percentages. PPE: Personal protective equipment.

Table 4. *Percentage change in drug prescriptions.*

Analgesics	Opioids		NSAIDs		Acetaminophen	
	Number	(%)	Number	(%)	Number	(%)
Increased prescription by						
100%	10	5.6	5	2.8	6	3.4
75%	13	7.3	25	14	13	7.3
50%	19	10.7	74	41.6	18	10.1
25%	34	19.1	59	33.1	63	35.4
0%	102	57.3	15	8.4	78	43.8
Other drugs	Oral steroids		Muscle relaxants		Agents for neuropathic pain*	
	Number	(%)	Number	(%)	Number	(%)
Increased prescription by						
100%	4	2.2	36	20.2	17	9.6
75%	13	7.3	41	23	26	14.6
50%	37	20.8	66	37.1	39	21.9
25%	73	41	22	12.4	56	31.4
0%	51	28.7	13	7.3	40	22.4

Data are presented as numbers and percentages; NSAIDs: nonsteroidal anti-inflammatory drugs; *: Agents for neuropathic pain included amitriptyline, doxepin, gabapentin, and pregabalin according to the requirement, availability, and legality of their use because some drugs are prohibited in some countries.

Smyrnioti et al (11) documented a dramatic decrease in health care visit rates before, during, and after lockdown during the first wave of the COVID-19 pandemic. After surveying patients with chronic pain, Kleinmann et al (12) documented cancellation or postponement of treatments during the pandemic by 56.4%, resulting in significantly more pain and psychological distress with symptom deterioration.

About 90% of responders attributed their practice reduction to their concerns about personal and family safety. Similarly, a web-based online survey of respiratory therapists who were obligated to come in contact with patients with COVID-19 and could not reduce their consultation rates, found about 60% of them used PPE at home in order to protect their families (13). In our study, a shortage of PPE appliances and tools was the cause for the reduction of consultation rates of 59% of responders; such attribution was real especially during the first wave of COVID-19 whenever there was doubt about the mode of transmission, especially the role of hard material contamination and about the effectiveness of PPE for limiting the transmission, so these therapists believed in isolation as the best preventive measure for disease transmission. Shanahan and Akudjedu (14) reported that the shortage of PPE tools was a complaint of radiologists who were obligated to be in contact with patients with COVID-19 because of increased demand for computed tomography and magnetic resonance imaging procedures; this increased

COVID-19 Effect on IPM Therapies Rate

Table 5. Percentages of application of an infection control program.

	Always	Often	Occasionally	Rarely	Never
Physical barriers	18 (10.1%)	23 (12.9%)	43 (24.2%)	65 (36.5%)	29 (16.3%)
Physical distance	33 (18.5%)	64 (36%)	52 (29.2%)	16 (9%)	13 (7.3%)
Clothes changing places	20 (11.2%)	23 (12.9%)	38 (21.3%)	52 (29.3%)	45 (25.3%)
Overshoes use	42 (23.6%)	60 (33.7%)	31 (17.4%)	20 (11.2%)	25 (14.1%)
Regular cleaning & disinfection	17 (9.6%)	26 (14.5%)	39 (21.9%)	56 (31.5%)	40 (22.5%)
Regular cleansing of clothes	39 (21.8%)	47 (26.4%)	53 (29.8%)	22 (12.4%)	17 (9.6%)
Available waste disposal practice	79 (44.4%)	54 (30.3%)	27 (15.2%)	10 (5.6%)	8 (4.5%)

Data are presented as numbers and percentages.

Table 6. Percentages of application of personal protective equipment.

PPE	Always	Often	Occasionally	Rarely	Never
Surgical masks	108 (60.7%)	42 (23.6%)	28 (15.7%)	0	0
N95 masks	21 (11.8%)	32 (18%)	19 (10.7%)	44 (24.7%)	62 (34.8%)
Gloves	58 (32.5%)	51 (28.7%)	35 (19.7%)	21 (11.8%)	13 (7.3%)
Eye protective tools	15 (8.4%)	43 (24.2%)	57 (32%)	26 (14.6%)	37 (20.8%)
Face shield	19 (10.7%)	37 (20.7%)	74 (41.6%)	27 (15.2%)	21 (11.8%)
Gowns	47 (26.4%)	32 (18%)	44 (24.7%)	32 (18%)	23 (12.9%)
Coverall	17 (9.6%)	27 (15.2%)	33 (18.5%)	42 (23.6%)	59 (33.1%)
Alcohol hand sanitizer	65 (36.5%)	73 (41%)	21 (11.8%)	13 (7.3%)	6 (3.4%)
Soap and running water	47 (26.4%)	69 (38.8%)	42 (23.6%)	20 (11.2%)	0

Data are presented as numbers and percentages.

Table 7. Impact of application of personal protective equipment on rates of consultation and interventional pain management therapy.

Points	Percentage of change	Decrease	No change	Increase
Impact of application of PPE on consultation rate	25	19 (43.2%)		23 (28.4%)
	50	22 (50%)		36 (44.4%)
	75	3 (6.8%)		13 (16%)
	100	0		9 (11.1%)
	Total	44 (24.7%)	53 (29.8%)	81 (45.5%)
Impact of application of PPE on IPMT rate	25	15 (36.6%)		16 (22.5%)
	50	19 (46.3%)		28 (39.4%)
	75	0		21 (29.6%)
	100	0		6 (8.5%)
	Total	34 (19.1%)	73 (41%)	71 (39.9%)

Data are presented as numbers and percentages. PPE: personal protective equipment; IPMT: interventional pain management therapy.

personal stress and anxiety at work and carried over to increased stress to their family, partners, or friends.

These data are consistent with those reported by Sharma et al (15) who surveyed intensive care unit health care providers and found that 66% of them were worried about transmitting COVID-19 to their families/communities while 40% attributed their concerns to the insufficient availability of PPE tools.

For compensation, most of the responding therapists tried to still be in contact with their patients by using the telephone or video conferencing as methods of communication. This was done to allow continuity of their practice and their hope to return to their usual work routine later. In line with these data, Smyrnioti et al (11) found most of the surveyed patients with chronic pain did document a significant desire to access their

pain physicians and medication, and in a nationwide cohort of multiple sclerosis clinicians across the United States, nearly one-third of responders reported using telemedicine to provide over 75% of their clinical care (16). Recently, Alhassan et al (17) found the COVID-19 pandemic accelerated the drive toward telemedicine and telerehabilitation and that many services were delivered remotely if nonurgent and if possible.

The observed effect of the COVID-19 outbreak on the rate of consultations and interventions indicates the outbreak's negative effect on patients with chronic pain; in line with this finding, Alhassan et al (17) documented that patients with osteoarthritis reported difficult access to the health care system and that this resulted in delays in joint replacement surgeries due to cancellations of elective surgical procedures. Moreover, the pandemic caused another pitfall in the health of patients with chronic pain that manifested as an increased rate of opioid prescriptions, acetaminophen, and oral steroids by about 43%, 56%, and 71% respectively (reference number?). Similarly, Morrison et al (16) documented that 83.3% of multiple sclerosis clinicians changed how they prescribed disease-modifying therapies during the COVID-19 pandemic

Revision of the responses regarding the application of ICP showed that irrespective of the mode of ICP, several responders who always and often use ICP was less than 50%. This points to either a shortage of facilities or these responders who never or rarely use ICP are careless or missing knowledge about the importance of ICP, especially during pandemics. In support of this outcome, Umpleby and Houghton (18) documented that IPC is central to optimizing patient management, providing safety for patients and health care workers, and maintaining operational capacity.

About 75% of the responders in our study reported a shortage of ventilation appliances and an absence of cross-ventilation in their workplaces despite its importance as a PPE tool. This was alleged to be the cause for their limited hours of work or total stoppage. In support of the importance of ventilation appliances, Sarti et al (19), in a retrospective observational study on a COVID-19 cluster among workers in an office in Italy, documented that all methods of

PPE are insufficient for COVID-19 infection prevention in closed places with poor ventilation and high occupancy. Also, a World Health Organization issued an update on infection prevention and control when COVID-19 is suspected or confirmed. They stated that when an aerosol-generating procedure was to be used, it should be done in a room with negative pressure or an appliance providing a minimum of 12 air changes per hour (20). Moreover, Umpleby and Houghton (18) documented that time and space after interacting with COVID-19 patients should be 11-17 minutes to allow a ventilation appliance with 25 air changes per hour to remove 99%-99.9% of contaminants.

CONCLUSION

The COVID-19 outbreak has seriously affected the rates of in-person consultations and IPMT for patients with chronic pain and increased the rates of consumption of analgesia and oral steroids. Most responders to our survey reported a shortage of ICP, especially ventilation appliances in workplaces. A high percentage of responders lack interest in ICP and PPE, despite the positive effects of its application on consultation and interventional pain management rates.

Statement of Significance

The increased knowledge about and provision of facilities for infection control and personal protection could increase the rate of interventional pain management procedures and spare the need for analgesics.

Limitation

This study was limited to being a national study and so lacked comparative data.

Recommendations

The authorities of the university hospitals and that of the Ministry of Health should provide conferences with hospital staff members to clarify the necessity of PPE use. Also, the authorities of these hospitals should make available ventilation appliances in outpatient clinics, for patients waiting for a consult or treatment, in the offices of their employees, and in inpatient wards, especially the ICU.

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